REMARKS

The present amendment is submitted in an earnest effort to advance this case to issue without delay, particularly in view of the fact that allowable subject matter has been indicated to be present.

1. The priority claim acknowledgment in paragraph 12 of PTOL-326 is appreciated.

2. Since the requirement for restriction has been made final, claims 9 to 13 have been cancelled without prejudice to Applicants right to claim the same or similar subject matter in a divisional application at some later date.

3. Claims 7 and 8 have been indicated to contain allowable subject matter and that is also deeply appreciated.

Both claims 7 and 8 have been placed in independent form by the inclusion therein of the subject matter of claim from which there were dependent. Outright allowance of claims 7 and 8 is in order.

4.   Claims 1 to 6 are retained in the case and
reconsideration of the rejection of these claims on art is
respectfully requested.

It is clear that the Examiner understands that the
claims are directed to a heating element which distinguishes over
the art by, inter alia, a greater mass. The Examiner has
suggested that this might not be a patentable distinction and
Applicant is not sure that the Examiner understands that this
greater mass is different by an order of magnitude at least from
that of the prior art and that is a key factor in preventing
misfiring without the need for collateral circuitry such as
varisters and the like. By reducing the need for external
circuitry, Applicant has guaranteed greater reliability and none
of this is even remotely suggested in the prior art.

5.   The claims in the case have been rejected as obvious
from the Duguet et al Patent 6,640,718 in combination with the
Duguet et al patent 6,289,813, possible further as taken with
Cieplik et al 6,269,745 or Troianello Patent 6,324,979.

There is, however, nothing in any of these combinations

which would point to or suggest the higher mass of the heating

element for igniting the pyrotechnic charge of the present

invention or suggests that, if one did increase the mass of that

heating element, one might eliminate the need for external

circuitry to avoid misfire or premature firing.

The claimed structure has much greater mass than the

structures taught in the prior art or stated otherwise, the

igniters of the applied prior art structures normally have much

smaller masses. This can be seen from Duguet '813 and Duguet

'718.

With such igniters, the center to center spacing of the

contact pins is normally 3 mm and the thickness is 1mm. In FIG. 2

of Duguet '813, an actual measurement of the spacing shows 73 mm

and thus the scale of the drawing is about 25:1. This FIG. 2

shows the plates and the bores for the contact pins which must be

somewhat larger than the contact pins themselves.

In FIG. 2, they are about 27 mm in diameter which, with

this scale, corresponds to about 1.1 mm in actuality which is

completely realistic. FIG. 2 can thus be understood to be a

drawing to scale. In FIG. 2, the length of the heating element is

5.5 mm and width is 3 mm which corresponds to 220 μm in actual

length and 120 μm in actual width. If these dimensions are

considered with the requirement in this reference that the

thickness by a maximum of 1 μm, one obtains a volume of a maximum

of only 2.6×10^{-14} m^3. This corresponds to a mass of less than

10^{-10} kg, a difference from the claimed mass greater than an order

of magnitude.

That this calculation is correct is confirmed by a

calculation of the resistance of the heating element which

normally should be 2 ohms. The total resistance of a rectangular

body is specific resistance times length, divided by the width and

divided by the thickness. If one suggests with a specific

resistance of 1×10^{-6} ohm meters (the geometric mean of the range

of 0.5×10^{-6} and 2×10^{-6} ohm meters), one obtains 0.1×10^{-6} ohm

meters x 220 μm divided by 120 μm divided by 1 μm = 1.83 ohm.

If one selects a thickness somewhat smaller than 1 μm,

the required 20 ohms is obtained.

Because of this very small mass, the igniter bridge

requires a varister 22 (see col. 4, lines 26 to 34) to prevent

false ignition as a result of electrostatic charges. With the

claimed mass, however, that varister can be eliminated.
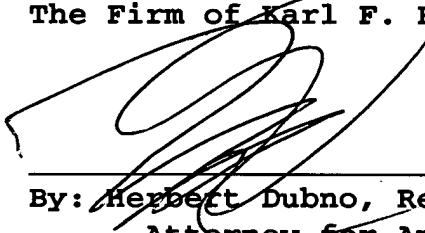
There is no suggestion of this in the art.

Similar considerations apply to the Duguet '718 reference. FIG. 1 is approximately to scale and in FIG. 3 the thickness of the contact pins is shown significantly less than scale. If one starts from assumption that the spacing should be 3 mm, the scale will be 35 to 1 as is the case for FIG. 2. The heating element there has a length of 8.5 mm and a width of 9 mm, corresponding in reality to a length of 240 μm and a width of 260 μm. Since the single example (Example 4) has a thickness of 0.5 μm and the desired resistance should reach 2 ohm, for which even smaller thicknesses would be required, the volume is comparable to that of Duguet '813 and again much smaller than that of the claims.

The other references do not suggest a larger resistance and nowhere in any of the four references which have been applied is there the least suggestion that the greater mass of claims 1 to 6 differing by more than the order of magnitude from the art, would allow the circuitry to eliminate the varister expressly taught by Duguet '813.

Accordingly, claims 1 to 6 are allowable together with claims 7 and 8 and an early notice to that effect is earnestly solicited.

6.   A petition for an automatic one month extension of the term is enclosed together with a PTO-2038 form charging the amount of the extension to the credit card of the undersigned.

Respectfully submitted,
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